

La montre-réveil VULCAIN CRICKET

Renseignements à l'intention de MM. les horlogers

Le rhabillage, ni l'entretien de la Vulcain Cricket n'offrent aucune difficulté spéciale.

Nous croyons cependant utile d'attirer l'attention de MM. les horlogers sur quelques particularités d'une montre qui apparaît comme essentiellement nouvelle.

① La membrane sonore assure la fermeture hermétique de la boîte. Le mouvement est donc parfaitement protégé contre la poussière, même si celle-ci pénètre par les ouvertures du fond. Au cas — fort rare — où un nettoyage extérieur de la membrane serait nécessaire, on y procédera avec la plus grande facilité en enlevant simplement le fond au moyen d'un ouvre-montres.

② Lié à la carrure, le poussoir ne se détache pas. Pour emboîter ou déboîter le mouvement, il faut tirer le poussoir vers l'extérieur jusqu'à l'arrêt. A partir de la position normale le chemin représente moins de 1 mm.

③ Pour atteindre le mouvement, on enlèvera la membrane en se servant d'un ouvre-montres.

Une position défectueuse de la membrane pourrait entraîner un affaiblissement, voire un arrêt de la sonnerie. Il est donc d'une grande importance que la membrane soit replacée dans la position exacte qu'elle occupait. La membrane et la carrure ont en conséquence été marquées de deux repères qui doivent correspondre parfaitement.

Comme la membrane est mince, il est nécessaire, pour la remettre en place, de presser sur toute la partie plane de sa surface. On utilisera, par exemple, un morceau de bois revêtu de peau ou de caoutchouc — le cabron, en termes de métier. — Aucune pression ne doit être exercée sur le centre de la membrane.

④ Les vibrations nées de la sonnerie nous ont obligés à prendre quelques précautions supplémentaires.

Les clefs de fixation sont munies de plaquettes de serrage. La raquette est bloquée en place par un verrou.

D'une façon générale, il est recommandé à MM. les horlogers de bloquer les vis à fond.

⑤ Les deux pages qui suivent sont extraites du catalogue de fournitures Vulcain. Elles contiennent la liste complète et la reproduction de toutes les pièces qui composent le mouvement Cricket.

Le remplacement des pièces usées s'opère aussi facilement que pour une montre ordinaire.

⑥ MM. les horlogers remarqueront le nouveau pivotement du balancier. Ce perfectionnement — qui fait l'objet d'un brevet — a pour effet de diminuer l'écart de réglage entre les diverses positions et de garantir une marche exceptionnellement précise.

The VULCAIN CRICKET watch

Practical hints for watchmakers

The repair and maintenance of the Vulcain Cricket does not offer any difficulties.

However, we would like to draw attention to some particular features of this radically new time-piece.

① The movement is protected against dust; the sound diaphragm or inner cap shuts the case hermetically. Dust may therefore penetrate through the holes of the outer case back without causing any injury to the movement. The dust may easily be removed by simply opening the outer case back by means of an ordinary case opener.

② To case or decase the movement, it is necessary to pull the button entirely out, i. e. about 1/32" beyond its normal position.

③ In order to obtain access to the movement, it is necessary to remove the sound diaphragm or inner cap, also by means of a case opener.

It is however very important to place it back *exactly* in the same position. The inner cap is for that reason provided with a joining mark which is placed exactly opposite the corresponding mark on the case band. A slight deviation of the inner cap from its exact position may prevent the alarm from ringing or at any rate considerably weaken the sound.

Since the inner cap is very thin, it is necessary to replace it on the watch case by pressing on the total diameter and area of its plain surface by means of a piece of soft wood, or to apply pressure *very carefully* to the edges.

④ The vibrations of the alarm have compelled us to take certain additional precautions.

The tightening of the case screws is reinforced by special washers. The regulator is held in place by a lock.

Generally speaking, it is recommended that all screws be thoroughly tightened.

⑤ The following two pages, reproduced from the general catalogue of Vulcain watch parts contain the names of all parts of the Cricket with the corresponding illustrations.

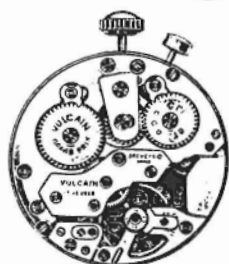
The replacement of worn-out parts does not offer any more difficulties than in any ordinary watch.

⑥ Watchmakers will notice the entirely new pivoting of the balance-wheel. This patented device has the effect of lessening the difference of timing in the various positions and therefore produces a much more regular running of the watch.

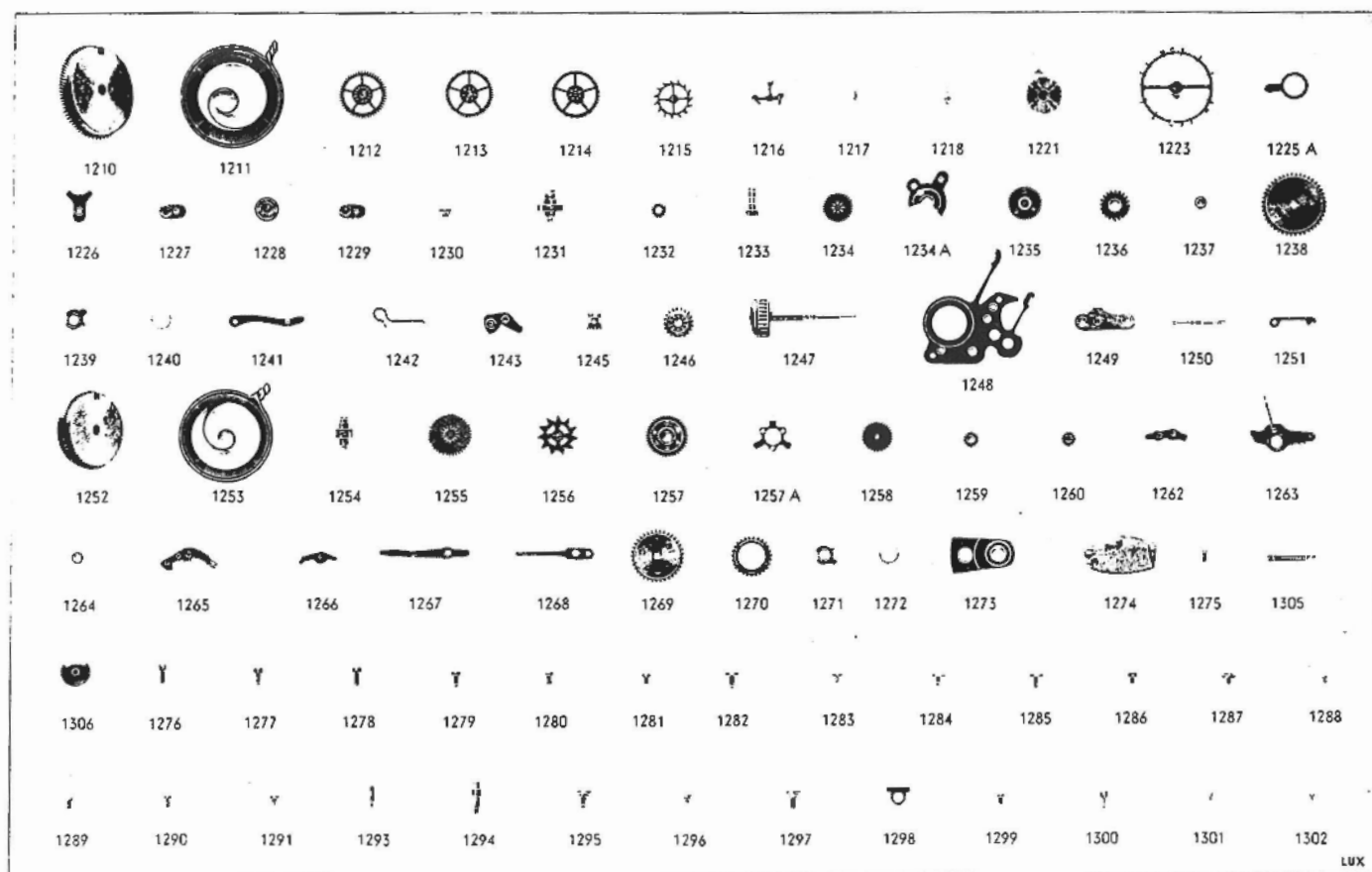
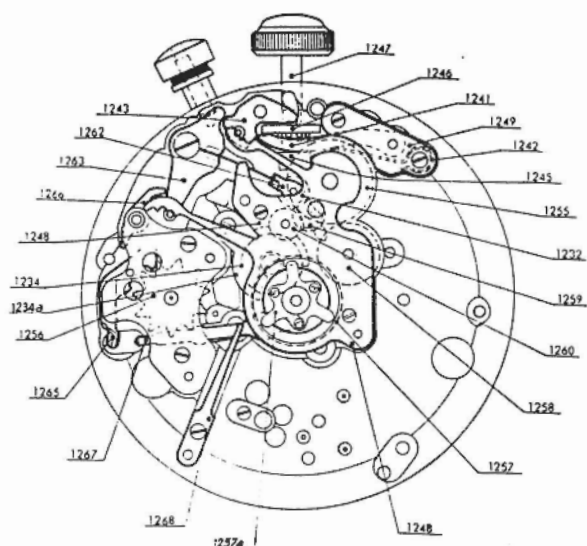
Fournitures interchangeables pour calibre

VULCAIN

cricket



12'''
seconde au centre
réveil
120



1210 Barillet avec couvercle (mouvement)
1211 Ressort de barillet (mouvement)
1212 Roue et pignon de centre
1213 Roue et pignon de moyenne
1214 Roue et pignon de seconde
1215 Roue et pignon d'échappement
1216 Ancre avec tige
1217 Tige d'ancrer
1218 Axe de balancier
1221 Spiral plat réglé
1223 Balancier monométallique avec axe et plateau

1225 A Raquette
1226 Verrou de raquette
1227 Plaque de contre-pivot dessus pour roue d'échappement
1228 Coqueret nickel
1229 Plaque de contre-pivot pour balancier

Movement barrel and cap
Movement mainspring
Center wheel with pinion
Third wheel with pinion
Fourth wheel with pinion
Escape wheel with pinion
Pallet fork and arbor
Pallet arbor
Balance staff
Flat hairspring regulated
Monometallic balance wheel with staff and roller
Regulator
Regulator lock
Upper end-piece, jewelled, for escape wheel
Upper cap jewel end-piece for balance
Lower cap jewel end-piece for balance

Barrilete con cubierta (movimiento)
Muelle real (movimiento)
Rueda y piñón de centro
Rueda inmediata y piñón
Rueda y piñón de segundos
Rueda y piñón de escape
Ancora con tija
Tija de áncora
Eje de volante
Espiral plano (regulado)
Volante monometálico con eje y platillo

Raqueta
Cerrojo de raqueta
Placa de contra-pivote de encima para la rueda de escape
Coquerete niquelado
Placa de contra-pivote

LUX

1230	Plateau	Roller	Doble platillos
1231	Arbre de barillet (mouvement)	Movement barrel arbor	Arbol de barrilete (movimiento)
1232	Renvoi de coulant	Setting wheel	Rueda de transmisión
1233	Chaussée	Cannon pinion	Cañón de minutos
1234	Roue et pignon de minuterie	Minute wheel with pinion	Rueda de • renvoi •
1234 A	Couvre-minuterie	Minute wheel cover	Cubre-minutería
1235	Roue à canon	Hour wheel	Rueda de mano
1236	Rochet de couronne	Crown wheel	Rochete de corona
1237	Bague de couronne	Crown wheel ring	Anillo de corona
1238	Rochet de barillet (mouvement)	Movement ratchet wheel	Rochete de barrilete (movimiento)
1239	Masse (mouvement)	Movement click	Trinquetes (movimiento)
1240	Ressort de masse	Movement click spring	Muelle trinquete (movimiento)
1241	Bascule	Clutch lever	Báscula
1242	Ressort de bascule	Clutch lever spring	Resorte de báscula
1243	Tirette	Setting lever	Tirette
1245	Pignon coulant	Clutch wheel	Piñón de ranura
1246	Pignon de remontoir	Winding pinion	Piñón de corona
1247	Tige de remontoir ¹⁾	Stem ¹⁾	Tija de remontoir ¹⁾
	avec couronne acier	with steel crown	con corona acero
	avec couronne pour boîte plaquée	with crown for G. F. case	con corona para caja enchapada
	avec couronne pour boîte or	with crown for gold case	con corona para caja oro
1248	Ressort sautoir	Setting lever spring	Muelle de tiraje
1249	Couvre-bascule	Clutch lever cover	Cubre-báscula
1250	Pignon de seconde au centre	Sweep second pinion	Piñón segundero central
1251	Ressort de friction	Friction spring	Muelle de piñón de segundero central
1252	Barillet avec couvercle (réveil)	Alarm barrel and cap	Barrilete con cubierta
1253	Ressort de barillet (réveil)	Alarm mainspring	Muelle real (despertador)
1254	Arbre de barillet (réveil)	Alarm barrel arbor	Arbol de barrilete (despertador)
1255	Roue et pignon de renvoi	Alarm setting wheel and pinion	Piñón y rueda de ranura transmisión
1256	Roue étoile avec pignon	Star wheel with pinion	Rueda estrella con piñón
1257	Roue de déclenchement	Unlocking wheel	Rueda de retén del martillo
1257 A	Ressort à trois bras	Three arms spring	Muelle de tres brazos
1258	Renvoi d'indicateur	Alarm setting connection wheel	Rueda de ranura transmisión para indicador
1259	Renvoi balladeur	Movable transmission wheel	Rueda de ranura transmisión móvil
1260	Renvoi de minuterie	Minute setting wheel	Rueda de transmisión minutería
1262	Bascule de renvoi	Setting wheel yoke	Báscula de renvoi
1263	Poussette avec ressort	Push-piece with spring	Botón con muelle
1264	Bague de poussette	Push-piece washer	Anillo de palanca
1265	Ancre réveil	Alarm lever	Ancora despertador
1266	Bascule d'ancre réveil	Alarm lever yoke	Báscula de áncora despertador
1267	Levier	Alarm stop lever	Palanca
1268	Ressort de levier	Alarm stop lever spring	Resorte de palanca
1269	Rochet de barillet (réveil)	Alarm ratchet wheel	Rochete de barrilete (despertador)
1270	Renvoi des rochets	Ratchets transmission wheel	Rueda de transmisión rochetes
1271	Cliquet (réveil)	Alarm click	Trinquete despertador
1272	Ressort de cliquet	Alarm click spring	Muelle trinquete despertador
1273	Bascule de couronne	Crown wheel yoke	Báscula de corona
1274	Marteau avec tige	Hammer with arbor	Martillo con tija

Vis pour :

1275	Cadran
1276	Pont de barillets (tête petit diamètre)
1277	Pont de barillets (à pivot)
1278	Ponts de barillet et d'échappement (tête grand diamètre)
1279	Pont de rouage
1280	Pont d'ancre
1281	Pont d'ancre réveil
1282	Couronne
1283	Masse
1284	Rochet de barillet (réveil)
1285	Rochet de barillet (mouvement)
1286	Ressort de levier
1287	Poussette
1288	Coqueret
1289	Couvre-bascule et verrou de raquette
1290	Plaques de contre-pivot pour balancier et pour roue d'échappement
1291	Ressort sautoir
1293	Piton
1294	Tirette
1295	Bascule de couronne
1296	Cliquet de réveil
1297	Fixage
1298	Plaquette de fixage
1299	Ressort de friction
1300	Coq
1301	Couvre-minuterie
1302	Ressort à trois bras
1305	Tenon de poussoir
1306	Tête de poussoir ¹⁾
	pour boîte acier
	pour boîte plaquée
	pour boîte or

Screws for :

Dial
Barrel bridge (small head)
Barrel bridge
Barrel and escape wheel bridges (large head)
Train-wheel bridge
Pallet bridge
Alarm lever bridge
Crown wheel
Movement click
Alarm ratchet wheel
Movement ratchet wheel
Alarm stop lever spring
Push-piece
Upper end-piece
Clutch lever cover and regulator lock
Lower end-piece for balance and upper end-piece for escape wheel
Setting lever spring
Stud
Setting lever
Crown wheel yoke
Alarm click
Case
Case screw washer
Friction spring
Balance cock
Minute wheel cover
Three arms spring
Pusher arbor
Pusher head ¹⁾
for steel cases
for G. F. cases
for gold cases

Tornillos para :

Esfera
Puente de barrilete (cabeza pequeña)
Puente de barrilete
Puente de barrilete y de escape (cabeza larga)
Puente de rodaje
Puente de escape
Puente de escape (despertador)
Rochete de corona
Trinquetes
Rochetes de barrilete (despertador)
Rochetes de barrilete (movimiento)
Muelle de palanca
Palanca
Coqueretes
Cubre-báscula y cerrojo de raqueta
Placas de contra-pivote para el volante y para la rueda de escape
Muelle de tiraje
Piñón
Tirette
Báscula de corona
Trinquete de despertador
Caja
Virola de sujeción
Resorte de fricción
Puente de volante
Cubre-minutería
Muelle de tres brazos
Tija de botón pulsador
Cabeza de botón pulsador ¹⁾
para caja acero
para caja enchapada
para caja de oro

¹⁾ Préciser pour quel genre de boîte: acier, chromé fond acier, plaqué fond acier, metalux, or. Indiquer la couleur de l'or ou du plaqué et le diamètre de la boîte.

¹⁾ State for which type of watch case: stainless steel, chromium steel back, G. F. steel back, metalux, gold. Also state colour of gold or G. F. and diameter of watch case.

¹⁾ Indicar el tipo de caja a que se refiere: cromado fondo acero, acero, enchapado fondo acero, metalux, oro. Indicar también el color de oro o enchape y el diámetro de la caja.

What Makes the 'Cricket' Chirp?

JUN 14 '49

Prepared exclusively for THE JEWELERS' CIRCULAR-KEYSTONE, this article presents for the first time in the United States details of the mechanism which makes the Vulcain 'Cricket' the first successful wrist alarm watch.

THE IDEA of an alarm watch is not new—the first attempts to devise one were made toward the end of the last century. However, although many ideas had been put on paper and a substantial number of patents applied for, it is only fair to say that practical results were extremely rare.

The process resorted to in most inventions was based mainly on tactile means, such as a claw or a revolving button designed to graze the wearer's wrist. Another method consisted of fitting a wrist watch to a stand or easel provided with sound amplifying apparatus. None of these inventions, however, appear to have been commercially practical.

Since the Vulcain "Cricket" alarm wrist watch (intro-

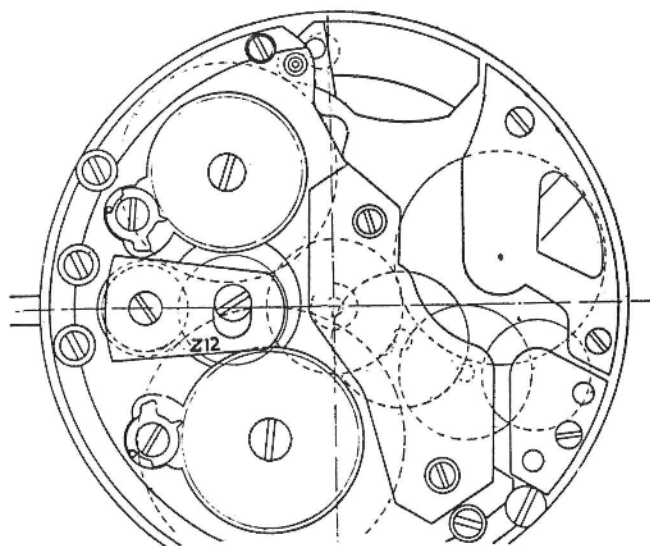


Fig. 1. Plan view (bridge side).

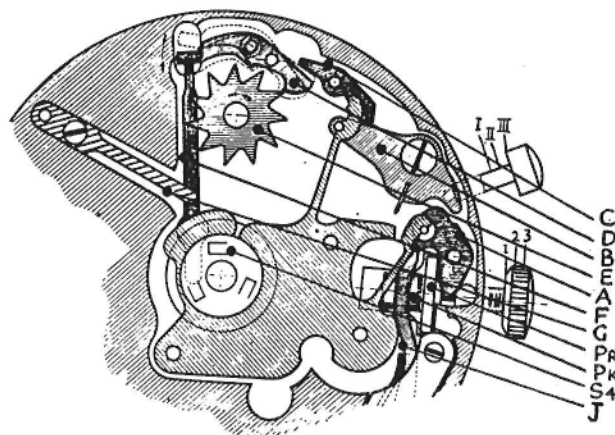


Fig. 2. Position I-III. This position is used for winding the movement, winding the alarm and leaving alarm free.

duced slightly over a year ago) is really the first sound-producing wrist-alarm worthy of the name, information concerning its mechanism and operation should be of major interest to watchmakers. The movement is characterized on the one hand by the mechanism itself and, on the other hand, by the alarm. A number of patents duly protect the invention.

THE MECHANISM

All the functions of the mechanism are controlled by a winding-crown and a pusher (referred to in instruction booklets as the "button"). These operate jointly through the use of a jumper-spring and can each be placed in three different positions. In the subsequent text and accompanying illustrations, pusher positions are indicated by Roman numerals (I, II, III) and crown posi-

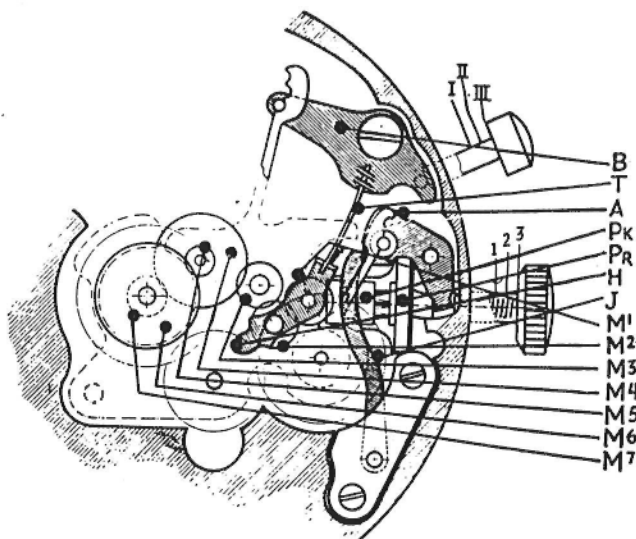


Fig. 3. Position 3-III, setting the movement hands. M1 first setting wheel; M2 second setting wheel; M3 intermediate setting wheel; M4 minute wheel; M5 minute wheel pinion; M6 hour wheel and M7 cannon pinion.

tions by Arabic numerals (1, 2, 3). The following table shows the five operations of the mechanism, together with the corresponding positions of both crown and pusher:

Crown	Pusher	Operation	Figure Number
1	III	Winding the movement Winding the alarm Alarm free	2
3	III	Setting the movement hands	3
3	I	Setting the alarm	4
2	II	Stopping the alarm Neutral wearing position.	6

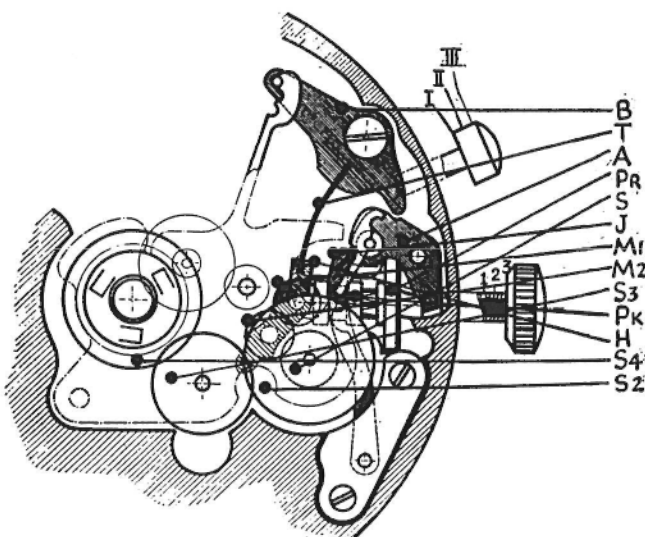


Fig. 4. Position 3-I. B Alarm rocker; T spring blade; A setting lever; Pr winding pinion; S1 alarm setting wheel; J hand setting yoke; M1 first setting wheel; M2 second setting wheel; S3 alarm intermediate wheel; Pk clutch wheel; H clutch yoke; S4 unlocking (discharging) wheel and S2 alarm setting wheel.

Pressing the pusher to change it from position III to position I (Figs. 2 and 4) causes the crown to jut out (change from position 1 to position 3). Conversely, pressing the crown causes the pusher to jut out. Shifting the crown from position 1 to position 3 (whether this is performed by pulling the crown or pressing the pusher) gives the same result as in a regular stem-setting mechanism: through the action of setting lever A and yoke J, the clutch wheel Pk is made to slide down into gear with the first setting wheel M1 (Figs. 3 and 4).

WINDING: (Position 1-III)

Winding the movement and the alarm are both performed with the crown in the same position—position 1 (all the way in). The system of castellation gearing of the clutch wheel and winding pinion (Pk, Fig. 2) effects the winding of the alarm mainspring when the crown is turned clockwise, and the movement mainspring when the crown is turned counter clockwise. Therefore, instead of unlocking the clutch wheel so that it turns idly, a second mainspring is wound for the watch movement. Fig. 1 shows, in plan view, the alternating crown wheel (Z12) transmitting the winding motion either to the alarm mainspring or to the movement mainspring, according to the direction in which the crown is rotated.

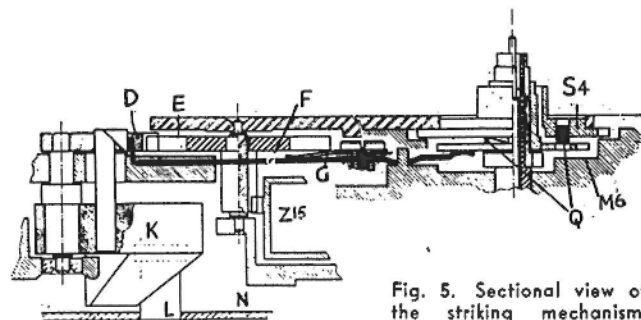


Fig. 5. Sectional view of the striking mechanism.

SETTING MOVEMENT HANDS: (Position 3-III)

Figure 3 shows how, through a tension of spring blade (T), the setting wheel (M2) meshes with the gear-train (M3 through M7) including the minute wheel and pinion (M4), hour wheel (M6) and cannon-pin (M7).

The pusher is put in position III by pressing the crown all the way in to position 1. Then the crown is pulled out to position 3 while the position of the pusher remains at III. It will be seen (Fig. 2) how this function is performed through the setting lever (A) clicking, as it were, with alarm rocker (B).

SETTING THE ALARM: (Position 3-I)

Pressing in the pusher causes the alarm rocker (B) and spring blade (T) to swing about. The blade, in its turn, actuates the clutch yoke (H) and the second setting wheel (M2), throwing them into gear with setting wheel (S1) of the gear train (S1 through S4) (Fig. 4).

RELEASING THE ALARM: (Position 1-III)

Figure 2 shows that position III of the pusher would allow the alarm hammer lever (D) to vibrate, were it not checked by the disconnecting lever (F). As a matter of fact (Please turn to page 160A)

'Cricket'

(From page 130)

fact, the position 1-III is the normal position of the control knobs when it is desired to have the alarm ring. It can be seen, in the sectional view (Fig. 5) that the lugs (Q) on discharging wheel (S4) and the three corresponding notches in the hour wheel (M6) maintain strict alignment of the wheels. Setting the alarm causes the discharging wheel (S4) and the lugs (Q) to be set in the selected position. Until the hour for which the alarm has been set is reached, the notches in the hour wheel (M6)

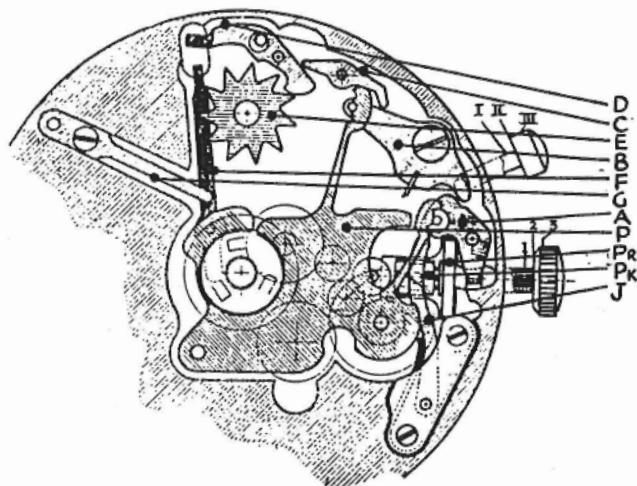


Fig. 6. Position 2-II. Stopping the alarm. D alarm hammer lever; C alarm stop lever; E star wheel; B alarm rocker; F disconnecting lever; G disconnector spring; A setting lever; P yoke holder spring; Pr winding pinion; Pk clutch wheel; J hand-setting yoke.

are made to slide under the lugs of the unlocking wheel (S4). They nest into each other at the time provided for by setting the alarm. This allows the hour wheel to slide along the cannon-pinion (under the action of disconnector spring (G) and permits the disconnecting lever (F) to swing and clear its hook-shaped end from the alarm hammer lever (D) which then vibrates under the action of the star wheel (E). The sectional view (Fig. 5) also shows

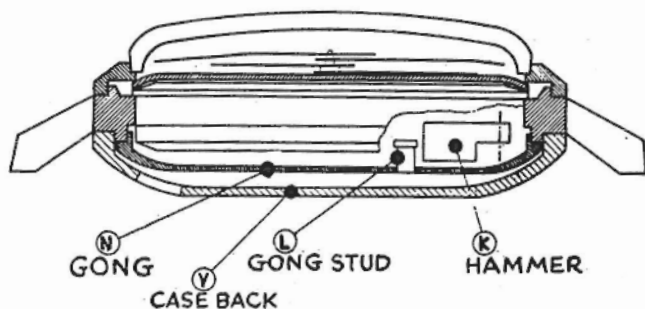


Fig. 7. Sectional view of "Cricket" case.

that alarm barrel (Z15) meshes directly with the pinion of the star wheel. The alarm hammer lever (D) operates jointly with hammer (K) through its arbor and a second pin. While oscillating, hammer (K) strikes the stud (L) fastened to the gong (N).

STOPPING THE ALARM: (Position 2-II)

Stopping the alarm is accomplished through positions I or II of the pusher (Figs. 4 and 6). In these positions, one end of alarm stop lever (C) is made to butt against the rocker (B) while the other end checks the motion of alarm lever (D). Hence, the teeth of the star wheel can no longer revolve. Position II has been especially provided to prevent the alarm from going off and also to keep the hammer at a standstill when the alarm main-spring has run down.

THE GONG

One of the unusual features of the "Cricket" is the bell system. It was found extremely difficult to contrive an alarm bell which could be heard. This obstacle was overcome in a highly original way (see Fig. 7). The gong (N) is fitted into the back of the watch somewhat in the

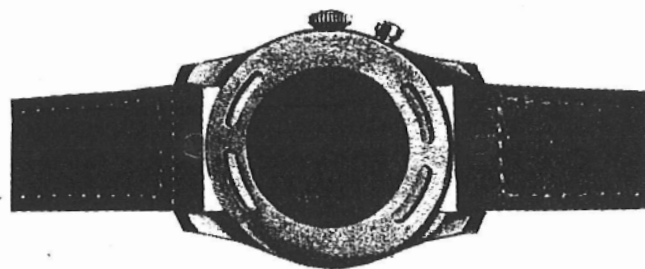


Fig. 8. Back of "Cricket" case showing openings provided to permit sound of inner alarm to be heard.

fashion of the inner lid of a hunting case. A case back (V) is then fitted over the gong. This back has four openings or air gaps (Fig. 8) whose purpose is to allow the sound to escape. Actually, this gong protects the movement from dust. The gong stud is, naturally, located to produce the maximum amount of sound.

It should be pointed out that the Vulcain company has also incorporated in this watch another patented feature, viz: the pivoting of the balance. This is characterized by a slating flange provided at the pivot ends, the purpose of which is to reduce the variation between the rate in the horizontal position and the rates in other positions.

Titania Crystals Offered to Trade

A limited quantity of the new titania crystals in boule form is being offered to the gem trade by the Titanium Division of National Lead Company, it is announced today. The only substance in existence more brilliant than a diamond, the titania crystals are being sold in the gem field to test their appeal and market potential as gems.

The price in boule form—before cutting—is fifty cents a carat for the clear, seventy-five cents a carat for the blue and amber crystals. While some demand may be anticipated from collectors, the offering is primarily aimed at manufacturers, dealers and cutters in the gem field.

Linde Air Products Co., makers of the synthetic star rubies and sapphires, are also making the titania but in the clear variety only, and are selling it to the trade at the same price as National Lead—50 cents a carat for the rough.

The index of light refraction of the new stones is about 2.70, as compared with the 2.41 of a diamond. They are